

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions of the claims in the Application. With reference to the listing it is noted that, herewith, claim 5 is canceled without prejudice or disclaimer, claims 1-4 and 6-17 are amended, and new claims 18 and 19 are added.

Listing of Claims

1. (Currently Amended) An exposure method comprising the steps of:

acquiring information of an image of an alignment mark formed on an object to be exposed, with respect to each of a plurality of values ~~by changing a value~~ of a device parameter, the information being used for an alignment between a reticle and the object, the reticle having ~~forming~~ a circuit pattern to be transferred to the object, and the parameter concerning the alignment and value being able to be set in an exposure apparatus;

determining the value of the ~~device~~ parameter to be set in ~~of~~ the exposure apparatus based on reproducibility of the image of which ~~the~~ information has been acquired with respect to each of the plurality of values of the parameter in said acquiring step; and

transferring the pattern to ~~onto~~ the object using the exposure apparatus in which ~~that sets the~~ determined value is set as the parameter ~~of the device parameter, which has been determined.~~

2. (Currently Amended) A ~~An~~ exposure method according to claim 1, wherein the reproducibility is defined by an interval between elements in the image alignment mark

~~formed on the object includes plural elements arranged at a predetermined interval,
wherein the information of the alignment mark includes the interval between the
plural elements.~~

3. (Currently Amended) A ~~An exposure~~ method according to claim 1 ~~2~~, wherein said determining step determines the value of the ~~device~~ parameter so that the reproducibility of the image improves ~~interval between the elements in the alignment mark may improve.~~

4. (Currently Amended) A ~~An exposure~~ method according to claim 2, wherein the reproducibility is defined by deviations of a plurality of the interval ~~said determining step determines the value of the device parameter so that a deviation from an average of plural intervals among the elements in the alignment mark acquired by said acquiring step may reduce.~~

5. (Canceled)

6. (Currently Amended) A ~~An exposure~~ method according to claim 1, wherein said determining step is repeated to acquire plural determined values of the ~~device~~ parameter, and said transferring step uses an average of the plural determined values of the ~~device~~ parameter.

7. (Currently Amended) A ~~An exposure~~ method according to claim 1, wherein said method is applied to a combination of a plurality of the parameter ~~the device parameter~~

~~includes one or more parameters for manipulating the exposure apparatus.~~

8. (Currently Amended) A ~~An exposure~~ method according to claim 1, wherein the ~~device~~ parameter defines ~~includes~~ an arrangement of sample shots used for a global alignment.

9. (Currently Amended) A ~~An exposure~~ method according to claim 1, wherein the ~~device~~ parameter defines ~~includes an illumination~~ a mode of ~~for~~ illuminating the alignment mark.

10. (Currently Amended) A ~~An exposure~~ method according to claim 1, wherein ~~the alignment mark formed on the object includes plural elements arranged at a predetermined interval,~~

~~wherein the device parameter~~ defines ~~includes a mark width of an element of the alignment mark as a length of the element~~ in an alignment measurement direction.

11. (Currently Amended) A ~~An exposure~~ method according to claim 1, wherein the parameter defines a width of a line element of the alignment mark ~~formed on the object includes plural elements arranged at a predetermined interval,~~

~~wherein the device parameter includes a mark line width as a width of a contour of the element.~~

12. (Currently Amended) A ~~An exposure~~ method according to claim 1, wherein the ~~device~~ parameter defines ~~includes~~ a process parameter used to process a detection signal

of the alignment mark.

13. (Currently Amended) ~~A~~ ~~An exposure~~ method according to claim 12, wherein the ~~device~~ parameter defines ~~is~~ a width of a process window.

14. (Currently Amended) ~~A~~ ~~An exposure~~ method according to claim 12, wherein the ~~device~~ parameter defines ~~is~~ a position ~~center distance~~ of a process window.

15. (Currently Amended) A program that enables a computer to execute an exposure method, said method comprising that includes the steps of:

acquiring information of an image of an alignment mark formed on an object to be exposed, with respect to each of a plurality of values ~~by changing a value~~ of a device parameter, the information being used for an alignment between a reticle and the object, the reticle having forming ~~a circuit~~ pattern to be transferred to the object, and the parameter concerning the alignment and value being able to be set in an exposure apparatus;

determining the value of the ~~device~~ parameter to be set in ~~of~~ the exposure apparatus based on reproducibility of the image of which ~~the~~ information has been acquired with respect to each of the plurality of values of the parameter in said acquiring step; and

transferring the pattern to onto the object using the exposure apparatus in which ~~that sets the~~ determined value is set as ~~of the device~~ parameter, ~~which has been~~ optimized.

16. (Currently Amended) An exposure apparatus for transferring a pattern formed on a reticle ~~to onto~~ an object to be exposed, said ~~exposure~~ apparatus comprising:

an acquiring system which acquires information of an image ~~acquisition part for acquiring information~~ of an alignment mark formed on the ~~an~~ object ~~to be exposed~~, with respect to each of a plurality of values ~~by changing the value of a~~ the device parameter, the information being used for an alignment between the reticle and the object, and the parameter concerning the alignment and set in said exposure apparatus; and

a determining unit which determines ~~an optimization part for setting~~ the value of the device parameter to be set in ~~to~~ said exposure apparatus based on reproducibility of the image of which the information has been acquired with respect to each of the plurality of values of the parameter by said acquiring system.

17. (Currently Amended) A device fabrication method comprising steps ~~the step~~ of:

exposing an object using an exposure method; and

developing ~~performing a development process for the~~ exposed object ~~exposed~~,

wherein said ~~the~~ exposure method comprises ~~includes the~~ steps of:

acquiring information of an image of an alignment mark formed on an object to be exposed, with respect to each of a plurality of values ~~by changing a value~~ of a device parameter, the information being used for an alignment between a reticle and the object to be exposed, the reticle having forming ~~a circuit~~ pattern to be transferred to the object to be exposed, and the parameter concerning the alignment and ~~value being able to be set~~ in an exposure apparatus;

determining the value of the ~~device~~ parameter to be set in ~~of~~ the exposure apparatus based on reproducibility of the image of which ~~the~~ information has been acquired with respect to each of the plurality of values of the parameter in said acquiring step; and

transferring the pattern to ~~onto~~ the object to be exposed using the exposure apparatus in which ~~that sets~~ the determined value is set as ~~of the device~~ parameter, ~~which has been determined.~~

18. (New) A method according to claim 4, wherein the deviations are deviations of the plurality of the interval from an average of the plurality of the interval.

19. (New) A method according to claim 4, wherein the deviations are deviations of the plurality of the interval from a designated value of the interval.